



Certificate / Certificat Zertifikat / 合格証

BIF 1601083 C001

exida hereby confirms that the:

FP50(B) & FP200(B) Directional Control Valves

**Bifold Fluidpower Ltd.
Chadderton, Manchester - UK**

Have been assessed per the relevant requirements of:

IEC 61508 : 2010 Parts 1-2

and meets requirements providing a level of integrity to:

Systematic Capability: SC 3 (SIL 3 Capable)

Random Capability: Type A, Route 2_H Device

**PFH/PFD_{avg} and Architecture Constraints
must be verified for each application**

Safety Function:

The Directional Control Valves will vent the downstream pressure when de-energized within the specified safety time

Application Restrictions:

The unit must be properly designed into a Safety Instrumented Function per the Safety Manual requirements. (Refer to the Assessment report for configurations excluded)

The manufacturer may use the mark:



Revision 4.0 May 2, 2023
Surveillance Audit Due
June 1, 2026



Evaluating Assessor

Certifying Assessor

BIF 1601083 C001

Systematic Capability: SC 3 (SIL 3 Capable)**Random Capability: Type A, Route 2_H Device****PFH/PFD_{avg} and Architecture Constraints
must be verified for each application****Systematic Capability :**

These products have met manufacturer design process requirements of Safety Integrity Level (SIL) 3. These are intended to achieve sufficient integrity against systematic errors of design by the manufacturer.

A Safety Instrumented Function (SIF) designed with this product must not be used at a SIL level higher than stated.

Random Capability:

The SIL limit imposed by the Architectural Constraints must be met for each element. This device meets *exida* criteria for Route 2_H.

IEC 61508 Failure Rates in FIT¹

Device	λ_{SD}	λ_{SU}	λ_{DD}	λ_{DU}
Solenoid operated	0	501	0	272
Direct Air Pilot operated	0	159	0	117
Indirect- Low Pressure Pilot operated	0	174	0	156
Frangible Bulb	0	443	0	342

¹ FIT = 1 failure / 10⁹ hours

SIL Verification:

The Safety Integrity Level (SIL) of an entire Safety Instrumented Function (SIF) must be verified via a calculation of PFH/PFD_{avg} considering redundant architectures, proof test interval, proof test effectiveness, any automatic diagnostics, average repair time and the specific failure rates of all products included in the SIF. Each element must be checked to assure compliance with minimum hardware fault tolerance (HFT) requirements.

The following documents are a mandatory part of certification:

Assessment Report: BIF 16/01-083 R002 V4R1 (or later)

Safety Manual: SIL-SM.011



80 N Main St
Sellersville, PA 18960